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A New Species of the Genus *Clistocoeloma* (Crustacea: Decapoda: Grapsidae) from Irian Jaya, Indonesia

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Abstract A new crab species of the family Grapsidae, *Clistocoeloma amamaparensense*, is described on the specimens from mangrove forest in Irian Jaya, Indonesia. It is close to *C. sinense* Shen and *C. merguiense* de Man, but distinguished from them most readily by the differences in the number of granules on the movable finger and pectinated teeth on the palm.

Key words: Grapsidae, new species, *Clistocoeloma amamaparensense*, Irian Jaya, Indonesia.

In Indonesian waters the grapsid crab genus *Clistocoeloma* A. Milne Edwards, 1873 comprises only two species, *C. merguiense* de Man and *C. tectum* (Rathbun) (Tesch, 1917). However, recent collection made by the senior author in the mangrove forest of Irian Jaya revealed the existence of one more species of this genus. This species in question closely resembles *C. merguiense* and also *C. sinense* Shen in the general shape of the carapace and chelipeds, but on a close examination, was proved to be new to science distinct not only from the two Indonesian species but also from all the other known species.

In this paper the new species is described and illustrated as *C. amamaparensense* named after the type locality. All measurements, in millimeters, are of the carapace width and length, respectively.

The holotype is deposited in the Zoological Museum Bogor, Cibinong, Indonesia (ZMB), and the paratypes are in collections of the Freeport Environmental Laboratory, Irian Jaya, Indonesia (FEL), the National Science Museum, Tokyo, Japan (NSMT), and the Zoological Reference Collection of the Raffles Museum, National University of Singapore (ZRC).

***Clistocoeloma amamaparens* sp. nov.**
 (Figs. 1, 2)

Type material. Ajkwa, Irian Jaya; 2 paratype males (FEL, 9.4×8.3 mm, 6.8×5.9 mm); coll. D. L. Rahayu; 18 August 1999. Same locality; holotype male (ZMB, 14.8×13.1 mm), 3 paratype males (ZMB, 10.5×9.0 mm; NSMT, 11.9×10.4 mm; ZRC, 9.7×8.6 mm); coll. D. L. Rahayu; 11 January 2000. Lanal Base, Irian Jaya; 1 paratype female (NSMT, 13.4×11.9 mm); coll. D. L. Rahayu; 8 December 1999. Tipoeka, Irian Jaya; 1 paratype male (FEL, 11.6×10.0 mm); coll. D. L. Rahayu; 10 October 1999. Same locality; 2 paratype females (ZMB, 10.9×9.3 mm; ZRC, 14.0×11.6 mm); coll. D. L. Rahayu; 21 December 1999.

Additional material. Ajkwa, 5 males (NSMT, largest 8.3×7.3 mm, smallest 5.0×4.6 mm), 3 females (NSMT, largest 5.6 by 5.1 mm, smallest 4.0×3.9 mm), data as for holotype. Tipoeka, 7 males (NSMT, largest 15×13.2 mm, smallest 7.6×6.5 mm), data as for 2 paratype females in ZMB and ZRC. Lanal Base, 3 females (NSMT, largest 7.1×6.4 mm, smallest 5.3×5.0 mm), data as for paratype female in NSMT.

Comparative material. *Clistocoeloma sinense* Shen. One female (17.9×14.8 mm), NSMT-Cr 4907, Shirahama, Tanabe Bay, Kii Peninsula, coll. Y. Koyama, February 1973. One male (14.8×11.6 mm) & 1 female (15×11.8 mm), NSMT-Cr 10329, Niihama Lake, mouth of Edo River, Tokyo Bay, coll. A. Hurota, 11 October 1990. One female (15.5×13.7 mm), NSMT-Cr unregistered, Niihama, coll. M. Mitsuhashi, 30 September 1998. One male, KMNH cat. no. 444 (15.9×12.5 mm), Wasana River, Kyushu, Japan, coll. Tashima, 22 July 1954. One female, KMNH cat. no. 3977 (10.5×8.9 mm), Okimizu River, Yanagawa, Kyushu, Japan, coll. Miyake & Oka, 5 September 1955.

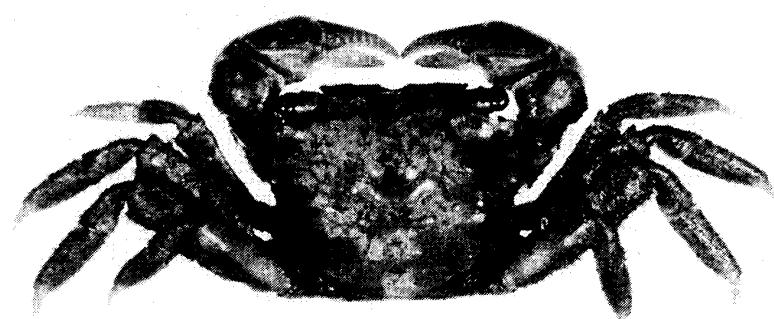
Description. Carapace ca. 1.1 times broader than long; greatest width on 3rd anterolateral lobes; dorsal surface very slightly convex. Dorsal surface, when cleaned from mud, covered with numerous clumps of tomentum, between clumps surface is smooth and shiny. Front more than half carapace width, strongly sinuous medially. Postfrontal lobe distinct, median pair prominent, broader than lateral pair, separated by moderately deep median furrow; lateral pair less prominent, separated from the former lobe by a shallow groove. Region apparent, but not strongly indicated except for gastric region which is well demarcated by a shallow groove leading to a furrow of median postfrontal lobe.

Anterolateral margin of carapace cut into 3 lobes including external orbital angle, each lobe fringed with dense, short setae; third lobe the largest; posterolateral margin slightly convex.

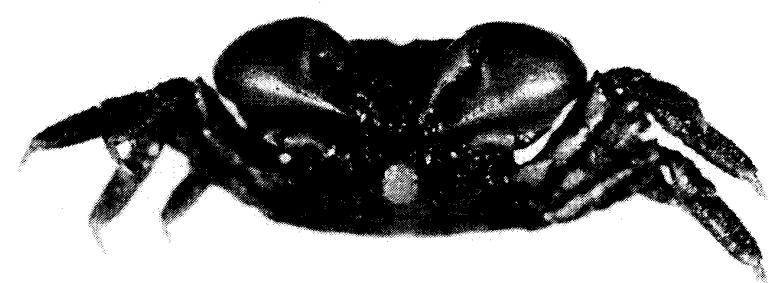
Chelipeds equal or subequal, large and robust in male, smaller and slimmer in female; in some specimens left cheliped larger than right. Ventral surface of merus smooth, anterior and posterior borders minutely granulate; subdistal tooth rectangu-

New Crab of *Clistocoeloma* from Indonesia

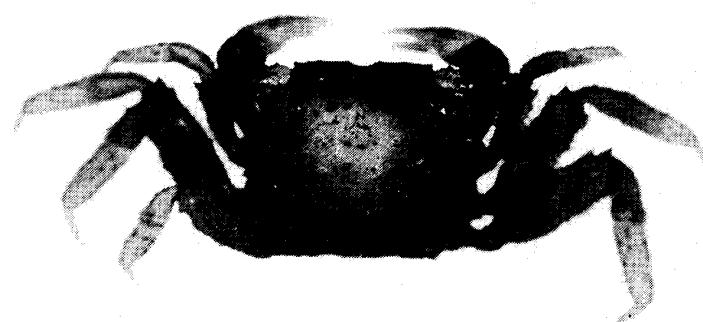
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A



B



C

Fig. 1. *Clistocoeloma amamaparens*e sp. nov., holotype, male (ZMB; 14.8×13.1 mm) in dorsal (A) and ventral (B) views, partly denuded; paratype, female (ZRC; 14.9×11.6 mm) (B) in dorsal view.

lar, serrated; mesial surface with 2 longitudinal rows of short setae, anterior region minutely tuberculate; lateral surface with clumps of tomentum anteriorly, remainder of the surface with scattered short setae; dorsal margin fringed with short setae. Carpus with inner angle not produced; dorsal surface with clumps of tomentum, dorsal margin granular. Dorsal surface of palm with longitudinal pectinated crest, composed of 40–59 teeth, distal teeth rounded and broad; lateral surface of palm smooth on smaller specimens, on bigger specimens several tubercles medially; short setae next to pectinated crest and on proximal region; ventral surface with several tubercles, stronger along dorsal margin; ventral margin smooth. Immovable finger rounded on dorsal surface, ventral margin slightly concave; cutting edges forming small gap in the bigger specimens, length of cutting edge 0.4 times length of palm, tips corneous. Movable finger 0.6 times length of palm, tapering distally, terminating in acute calcareous tip; dorsal surface of movable finger with 10–12 tubercles, widely spaced, proximal tubercles small and rounded, increasing in size in the middle part, decreasing in size and indistinct distally. In female, tubercles of movable finger not so prominent, sometimes indistinguishable.

Walking legs moderately long and flattened; 2nd and 3rd legs are of same length, about 1.5 times carapace width; meri, carpi and propodi covered with short and dense tufts of setae, longer setae on dorsal and ventral margins forming tufts and give appearance like lobes; dactyli less setose. In 3rd leg, merus, carpus and propodus are 3, 2 and 3 times as long as wide, respectively.

Male abdomen moderately narrow, 3rd segment the widest, covered with short setae, lateral margins fringed with longer setae; 6th segment about 3 times wider than long, lateral margins moderately concave; telson a little longer than wide at base and 1.6 times longer than 6th abdominal segment, evenly rounded. Female abdomen wide, telson half trapped in the 6th segment

First male pleopod moderately stout, apical process corneous and moderately produced.

Remarks. The type species of the genus *Clistocoeloma* A. Milne Edwards, 1873 is *C. balansae* A. Milne Edwards, 1873 from New Caledonia, by the original designation. Since then, *C. merguiense* de Man, 1888, *C. sinense* Shen, 1933, and *C. suvaense* Edmondson, 1951 were described in this genus.

Based on the specimens from Nias and the Talaut Archipelago, Tesch (1917) decidedly transferred *Sesarma* (*Sesarma*) *tectum* Rathbun, 1914 from Port San Vicente, near Luzon in the Philippines to the genus *Clistocoeloma*. This species is now known as *C. tectum* and apparently close to *C. balansae*, as rightly mentioned by him. He also suggested the systematic position of *Sesarma* (*Sesarma*) *lanatum* Alcock, 1900 in the genus *Clistocoeloma*, because the whole appearance of the carapace, chelipeds and ambulatory legs reminds one strongly of *Clistocoeloma* rather than of *Sesarma*. However, Tweedie (1936) recorded the comment of Dr. B. N. Chopra of the Indian Museum that the species in question is a true *Sesarma* and not a

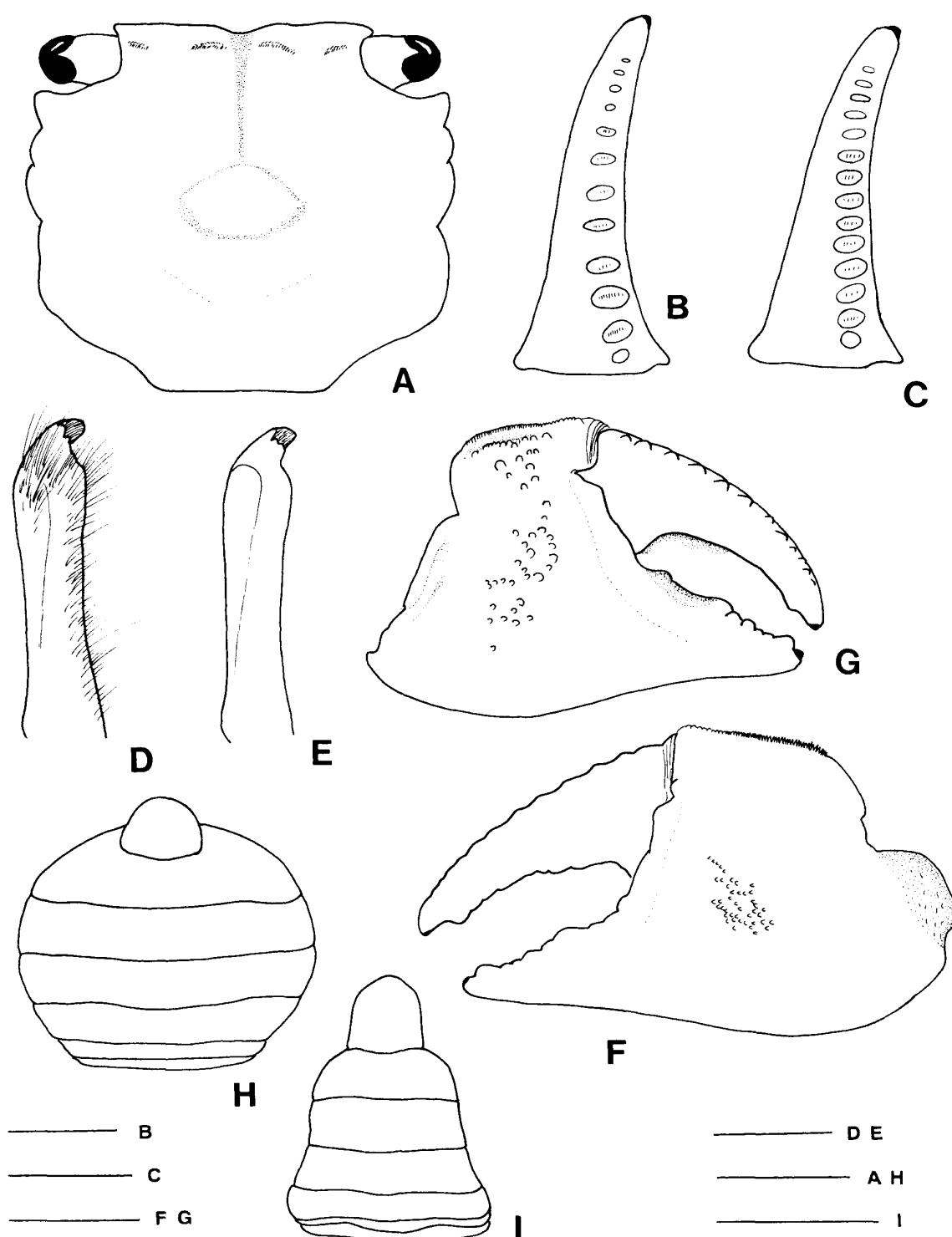


Fig. 2. *Clistocoeloma amamaparens* sp. nov., holotype male (ZMB; 14.8×13.1 mm) (A, B, F, G), paratype male (NSMT; 11.9×10.4 mm) (D, E, I), and paratype female (NSMT; 13.4×11.9 mm) (H), and *Clistocoeloma sinense* Shen, male (NSMT-Cr 10329; 14.8×11.6 mm) (C). A, carapace in dorsal view; Band C, movable finger of left chela in dorsal view; D and E, right first pleopod; F and G, left chela in lateral and ventral views ; H and I, abdomen. All setae are omitted except for D. Scales—B, C and DE=2 mm; FG=3 mm; AH and I=4 mm.

Clistocoeloma.

Next to the notes on *S. (S.) lanatum*, Tesch (1917) also mentioned that *S. (Holometopus) villosum* A. Milne Edwards, 1869 is a true *Sesarma*, with a similar resemblance to *Clistocoeloma*. According to him, the species of *Sesarma s. lat.* that resemble *Clistocoeloma* are to be distinguished from the latter genus by the orbit being open. Following the nomenclatural amendments by Holthuis (1977), *Holometopus* is now known as *Chiromantes* Gistel which was recently discussed in detail as for the systematic position by Ng and Liu (1999). They decidedly removed two of 13 known species from *Chiromantes*, and mentioned that one of them, *S. villosum*, is more likely to be a species of *Clistocoeloma*, with regard to its carapace features and setose surfaces.

*Clistocoeloma amamaparens*e sp. nov. is close to *C. sinense* Shen and *C. merguiense* de Man. The morphological similarity between these two species has been the source of confusion, but the differences of the two species were made clear by Hsueh and Huang (1996). It is now known that *C. sinense* is a temperate species (Japan, China and Taiwan), while *C. merguiense* is an Indian Ocean and Indo-Malaysia species. Alcock (1900), Tesch (1917), Tweedie (1936), and Chopra and Das (1937) added to the original description some helpful notes and figures for subsequent identification of *C. merguiense*.

*Clistocoeloma amamaparens*e sp. nov. has the morphological characters between *C. sinense* and *C. merguiense*. However, examination of several specimens of different sizes shows constant characters that warrant a specific differentiation. The new species has 10–12 granules on the movable finger (against 11–13 in *C. sinense* and 15–16 in *C. merguiense*). The number of the pectinated teeth on the palm are 40–59 (30–40 in *C. sinense* and 25–34 in *C. merguiense*). The ratio of length of the telson to the sixth abdominal segment is 1.6 : 1 (against 1.5 : 1 in *C. sinense* and 2 : 1 in *C. merguiense*). Ventral surface of the palm has several granules which are stronger along the dorsal margin. In *C. sinense* ventral margin of the palm is provided only with 8 granules in a longitudinal line, while several granules are also found in *C. merguiense*, but not as many as in the new species. First male pleopod of the new species is armed with stronger and longer apical process.

The comparison with *C. sinense* from Japan deposited in the National Science Museum, Tokyo (NSMT), and the Kitakyushu Museum of Natural History (KMNH) shows that the new species has the narrower carapace. The width of carapace is 1.1 times the length of carapace, while the width of carapace of *C. sinense* is 1.3 times the length. The front of *C. sinense* is only very slightly sinuous and median pair of postfrontal lobe is less prominent. Granules on the movable finger are rounded and closely spaced in *C. sinense*.

The specimens representing a new species were collected from muddy bottom in mangrove forest along a river. It lives under rotten wood of trunk and is very common in Amamapare Region, Irian Jaya. The crabs are wholly covered with mud and

do not move quickly or it stays still when disturbed. The salinity of the water is about 25 and 30‰ at low and high tide, respectively.

Etymology. The specific name is derived from Amamapare, the name of the region where Tipoka River is located.

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